

REMARKS

This Amendment is filed in response to the final Office Action dated March 26, 2008, and is respectfully submitted to be fully responsive to the objections and rejections raised therein. Accordingly, favorable reconsideration on the merits and allowance is respectfully requested.

The amendments and how they respond to the objections and rejections set forth in the Office Action are explained below in detail.

In the present Amendment, claim 1 has been amended to limit formula (II) to a trimellitic acid or anhydride thereof. Furthermore, formula (III) has been amended to represent triethyl phosphonoacetate.

Claim 2 has been amended to recite trimellitic acid or anhydride thereof instead of “the aromatic polyvalent carboxylic acid represented by general formula (II)”.

No new matter has been added. Support for the Amendment can be found throughout the specification, e.g., page 10, lines 29-32 and in Example 2 on page 37, lines 8-16.

Entry of the Amendment is respectfully submitted to be proper. Upon entry of the Amendment, claims 1-20 will be all the claims pending in the application.

I. Response to Rejection Under 35 U.S.C. § 103(a)

Claims 1, 2, 5 - 12, 16, 17, 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,965,919 (“Fujita”) in view of U.S. Patent 6,593,447 (“Yamamoto”) and in further view of U.S. Patent 4,254,018 (“Kowallik”).

Applicant traverses and requests withdrawal of the rejection in view of the following remarks.

The present invention as recited in amended claim 1 has the following patentable features:

A. The polyester different-contraction commingled yarn of the present invention comprises two different types of filaments with different boiling water shrinkage ratios.

B. The polyester different-contraction commingled yarn comprises polyester polymer as the principal component individually.

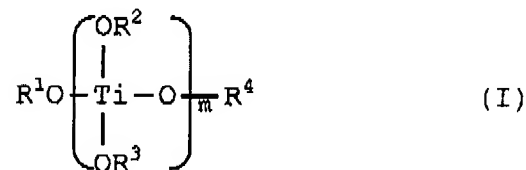
C. The polyester polymer is one produced by polycondensation of an aromatic dicarboxylate ester in the presence of a catalyst.

D. The catalyst comprises at least one ingredient selected from among mixture (1) and reaction product (2) below.

E. The mixture (1) is a mixture of the following components (A) and (B):

(A) a titanium compound component comprising at least one compound selected from the group consisting of;

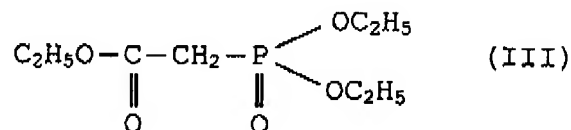
(b) reaction products of titanium alkoxides of general formula (I)



wherein R^1 , R^2 , R^3 and R^4 each independently represent one species selected from alkyl groups having 1 to 20 carbon atoms and phenyl group, m represents an integer of 1 - 4, and when m is an integer of 2, 3 or 4, the two, three or four R^2 and R^3 groups may be the same or different;

with trimellitic acid or anhydride thereof, and

(B) a phosphorus compound component comprising triethyl phosphonoacetate represented by the formula (III):



F. The catalyst mixture (1) is used with a mixing ratio such that the ratio (%) MTi of the millimoles of titanium element in the titanium compound component (A) with respect to the number of moles of the aromatic dicarboxylate ester and the ratio (%) Mp of the millimoles of phosphorus element in the phosphorus compound component (B) with respect to the number of moles of the aromatic dicarboxylate ester satisfy the following expressions (i) and (ii):

$$1 \leq \text{Mp}/\text{MTi} \leq 15 \quad (\text{i})$$

$$10 \leq \text{Mp} + \text{MTi} \leq 100 \quad (\text{ii}),$$

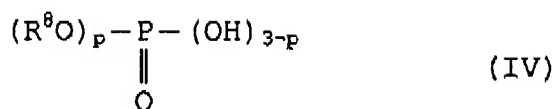
G. The reaction product (2) is the reaction product of the following components (C) and (D):

(C) a titanium compound component comprising at least one compound selected from the group consisting of:

(c) titanium alkoxides represented by formula (I) above and

(d) reaction products of titanium alkoxides of general formula (I) above with trimellitic acid or anhydride thereof, and

(D) a phosphorus compound component comprising at least one phosphorus compound represented by the following general formula (IV):



wherein R^8 represents alkyl group having 1 to 20 carbon atoms or aryl group having 6 to 20 carbon atoms, and p represents an integer of 1 or 2.

Thus, the combination of features A to G enables the resultant polyester different-contraction commingled yarn of the present invention to exhibit (1) good color tone, (2) excellent moldability, and (3) a high resistance to fluff formation on the yarn. Thus the specific yarn of the present invention is useful for producing luxurious clothes. Also, these features render the present claims patentably distinct over Fujita, Yamamoto and Kowalik independently and/or combined, for the following reasons.

U.S. Patent 4,965,919 (Fujita)

Fujita discloses potential bulky polyester associated bundles or yarns for woven or knitted fabric. The yarn includes spontaneously heat extensible multifilament A and heat shrinkable multifilament B. Fujita, however, is silent as to the presence of a catalyst for producing polyester polymers for the multifilaments A and B.

Accordingly, Fujita does not teach or suggest features E, F and G and the advantage of the present invention derived from the combination of features A and B with features F, F and G as recited in present claim 1. Thus, the Fujita reference is clearly deficient and does not render the present claims obvious.

U.S. Patent 6,593,447 B1 (Yamamoto)

Yamamoto discloses a process for producing polyester by using a specific catalyst. The catalyst is a reaction product derived from a titanium compound (1) of formula (I); or a Ti compound (2) produced by reacting the Ti compound (1) with an aromatic polyfunctional carboxylic acid of the formula (II); or anhydride thereof with a compound (3) of the formula (III).

In formula (III) of Yamamoto, the R^2 group is directly bonded to a phosphorus atom. Thus, the P compounds of formula (III) are aryl or alkyl phosphonic acids or aryl or alkyl phosphinic acids, as mentioned in column 7 of Yamamoto. Yamamoto does not teach or suggest a triethyl phosphonoacetate of the formula (III) or a phosphate esters of the formula (IV) set forth in amended claim 1 of the present application.

Thus, the catalyst of Yamamoto which is a reaction product of the Ti compound component with the aryl or alkyl phosphoric acid or aryl or alkyl phosphonic acid is distinguishable not only from the mixture (1) for the catalyst of the present invention but also from the reaction product (2) of the titanium compound component with the phospholates of the formula (IV), of the present invention. Namely, Yamamoto does not teach or suggest features E, F, G of the present invention.

Furthermore, Yamamoto is silent as to features A and B of the present invention. Accordingly, Yamamoto does not teach or suggest the present invention, and even taken together with Fujita, does not render the present claims obvious.

U.S. Patent 4,254,018 (Kowallik)

Kowallik discloses linear polyesters containing phosphonate heat stabilizers. The polyesters of Kowallik are produced by polycondensing dicarboxylic acids with dihydroxy compound in the presence of a polycondensing catalyst and the phosphonate heat stabilizer. Kowallik does not teach that the phosphonate heat stabilizer serves as a component of the polycondensing catalyst. Also, Kowallik does not teach the specific titanium compound component (A)-(b) of the present invention, which is used in combination with triethyl phosphonoacetate of the formula (III) of the present claimed invention.

It is noted that "triethyl phosphonoacetate" is identical to "diethyl ester of carboethoxy-methane-phosphonic acid" mentioned in column 3, lines 50 to 54, of Kowallik.

In column 6, lines 19 to 26 of Kowallik, it is mentioned that examples of suitable polycondensation catalysts include antimony oxide, germanium oxide, titanium metylate and other conventional titanium catalysts. Preferable polycondensation catalysts include antimony oxide, germanium oxide, and a mixture of these two. Also, in Examples 1 - 14 of Kowallik, only a mixture of Sb_2O_3 with GeO_2 is used as a polycondensation catalyst.

Accordingly, Kowallik does not teach or suggest to use triethyl phosphonoacetate as a component of a polycondensation catalyst in combination with the specific titanium compound component as defined in amended claim 1, namely, features E and F of the present invention. Also, Kowallik is silent as to features A, B and G of the present invention.

Thus, Kowallik does not teach or suggest the specific mixture (1) and reaction product (2) for the polycondensation catalyst as defined in the amended claim 1 and does not render the present claims obvious, alone or in combination with the other references.

Combination of Fujita, Yamamoto and Kowallik

The cited references do not teach or suggest every limitation in the claims. Fujita, Yamamoto and Kowallik alone or in combination do not teach or suggest features E, F and G of the present invention. Thus no combination of Fujita, Yamamoto and/or Kowallik teaches or suggests the combination of features A to G and the advantages derived from the combination of these features.

Accordingly, the combination of the cited references does not render the polyester different-contraction commingled yarn as recited in the present claims herein obvious. Therefore, Applicant respectfully requests that this Amendment be entered and that the rejection under 35 U.S.C. § 103(a) based on the combination of Fujita, Yamamoto and Kowallik be withdrawn.

II. Response to Non-Statutory Double Patenting Rejection

Claim 1 - 6 were **provisionally** rejected on the grounds of non-statutory obviousness-type double patenting rejection, assertedly being unpatentable over claims 1 - 20 of co-pending Application No. 10/541,574, claims 1 - 15 of co-pending Application No. 10/535,419, and claims 1 - 16 of co-pending Application No. 10/540,880.

Applicant respectfully requests that these provisional rejections be held in abeyance until allowable subject matter has been identified in one of the applications.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the local Washington D.C. telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


Respectfully submitted,

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